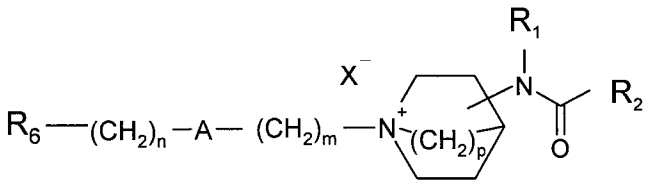
AMENDMENTS TO THE CLAIMS

Please cancel claims 32, 34-45, 50-53, and 55-60 without prejudice or disclaimer. Please amend claim 33 and add new claims 61-67. Deletions appear in ~~strikethrough~~ and additions are underlined. The listing of claims below will replace all prior versions and listings of claims in the application.

1-32. (Canceled).

33. (Currently Amended) ~~The compound according to Claim 32, wherein the~~ A compound ~~is a quaternary ammonium salt~~ of formula (II)



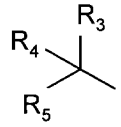
(II)

wherein

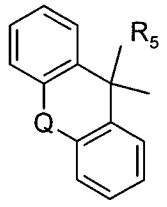
- R_1 represents a hydrogen atom or a straight or branched, optionally substituted lower alkyl group;

- R_2 represents a group of formula i) or ii)

i)



ii)



wherein:

- R_3 represents a group chosen from phenyl, 2-furyl, 3-furyl, 2-thienyl and 3-thienyl;

- R_4 represents a group chosen from optionally substituted lower alkyl, optionally substituted lower alkenyl, optionally substituted lower alkynyl, cycloalkyl, cycloalkylmethyl, phenyl, benzyl, phenethyl, 2-furyl, 3-furyl, 2-thienyl and 3-thienyl; and

- R_5 represents a hydrogen atom or a hydroxy, methyl, or $-CH_2OH$ group;

wherein the benzene rings in formula ii) and the cyclic groups represented by R_3 and R_4 are each independently optionally substituted by one, two or three, identical or different, substituents chosen from halogen, straight or branched, optionally substituted lower alkyl, hydroxy, straight or branched, optionally substituted lower alkoxy, nitro, cyano, $-CO_2R'$ and – NR'R", wherein R' and R" each independently represents a hydrogen atom or a straight or branched, optionally substituted lower alkyl group or R' and R" together with the atom to which they are attached form a cyclic group;

- Q represents a single bond or a $-CH_2-$, $-CH_2-CH_2-$, -O-, $-O-CH_2-$, -S-, $-S-CH_2-$ or -CH=CH- group; and

- p is 1 or 2 and the amide group is at positions 2, 3 or 4 of the azabicyclic ring;

- m is an integer ranging from 0 to 8;

- n is an integer ranging from 0 to 4:

- A represents a group chosen from $-CH_2-$, -CH=CR'-, $-CR'=CH-$, -CR'R"-, -C(O)-, -O-, -S-, -S(O)-, $-S(O)_2-$ and –NR'-, wherein R' and R" each independently represents a hydrogen atom or a straight or branched, optionally substituted lower alkyl group or R' and R" together with the atom to which they are attached form a cyclic group;

- R_6 represents a hydrogen atom, or a group chosen from straight or branched, optionally substituted lower alkyl, hydroxy, straight or branched, optionally substituted lower alkoxy, cyano, nitro, -CH=CR'R'', -C(O)OR', -OC(O)R', -SC(O)R', -C(O)NR'R'', -NR'C(O)OR'', -NR'C(O)NR'', cycloalkyl, phenyl, naphthanelyl, 5,6,7,8-tetrahydronaphthanelyl, benzo[1,3]dioxolyl, heteroaryl and heterocyclyl; wherein R' and R'' each independently represents a hydrogen atom or a straight or branched, optionally substituted lower alkyl group or R' and R'' together with the atom to which they are attached form a cyclic group;

and wherein the cyclic groups represented by R_6 are optionally substituted by one, two or three, identical or different, substituents chosen from halogen, hydroxy, straight or branched, optionally substituted lower alkyl, phenyl, -OR', -SR', -NR'R'', -NHCOR', -CONR'R'', -CN, -NO_2 and -COOR'; wherein R' and R'' each independently represents a hydrogen atom or a straight or branched, optionally substituted lower alkyl group or R' and R'' together with the atom to which they are attached form a cyclic group; and

- X^- represents a pharmaceutically acceptable anion of a mono or polyvalent acid,

or a stereoisomer or mixture thereof;

with the proviso that when p is 2, the amide moiety is in position 3 of the quinuclidine ring, R_1 is hydrogen, R_3 and R_4 are both unsubstituted phenyl and R_5 is hydroxy, then in the compounds of formula (II) the sequence R_6 - $(CH_2)_n$ – A – $(CH_2)_m$ – cannot be a methyl group; and

wherein when a methyl group is attached to the nitrogen atom of the quinuclidine ring, then R_5 cannot be hydroxy.

34-45. (Canceled).

46. (Previously Presented) The compound according to Claim 33, wherein,

- m is an integer ranging from 0 to 6;

- n is an integer ranging from 0 to 4;

- A represents a group chosen from $-CH_2-$, -CH=CH-, -O-, -C(O)-, -NR'-, and -S-; and

- R_6 is a hydrogen atom, a cyano group, a nitro group, a -C(O)OR' group, a -OC(O)R' group, a -SC(O)R' group, a $-CH=CH_2$ group, a –CH=CR'R" group, a C(O)NR'R" group, a straight or branched C_1-C_4 alkyl group, which is optionally substituted with at least one halogen atom, a straight C_1-C_4 alkoxy group, which is optionally substituted with at least one substituent chosen from halogen atoms, hydroxy groups, and a cyclic group, which is optionally substituted with at least one substituent chosen from halogen atoms, groups of formula –C(O)NR'R" and methyl, hydroxy, nitro and phenyl groups, wherein the cyclic group is chosen from cyclohexyl, phenyl, 5,6,7,8-tetrahydronaphthanelyl, 2-thienyl, 1-pyrrolidinyl, 1-pyrrolyl, benzo[1,3]dioxolyl, 2-benzothiazolyl, naphthalenyl and dioxolyl.

47. (Previously Presented) The compound according to Claim 46, wherein,

- m is an integer ranging from 0 to 5;

- n is an integer ranging from 0 to 2;

- A represents a group chosen from $-CH_2-$, -CH=CH-, -O-, -C(O)-, -NR'-, and -S-; and

- R_6 is a hydrogen atom, a cyano group, a -C(O)OR' group, a -OC(O)R' group, a -SC(O)R' group, a $-CH=CH_2$ group, a -C(O)NR'R'' group, a straight or branched C_1-C_4 alkyl group, a trifluoromethyl, or a cyclic group chosen from cyclohexyl, 5,6,7,8-tetrahydronaphthanelyl, 2-thienyl, 1-pyrrolyl, benzo[1,3]dioxolyl, 2-benzothiazolyl, naphthalenyl, dioxolyl and phenyl, wherein the cyclic group is optionally substituted with at least one substituent chosen from halogen atoms, groups of formula –C(O)NR'R'', methyl, hydroxy and phenyl groups.

48. (Previously Presented) The compound according to Claim 47, wherein,

- m is an integer ranging from 0 to 5;

- n is an integer ranging from 0 to 2;

- A represents a group chosen from $-CH_2-$, -CH=CH-, and –O-; and

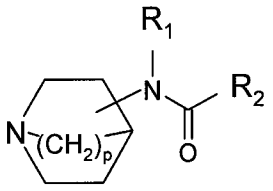
- R_6 is chosen from hydrogen, straight C_1-C_4 alkyl group, $-CH=CH_2$ group, cyclohexyl group, and a phenyl group , wherein the phenyl group is optionally substituted with one or two, identical or different, substituents chosen from methyl groups and hydroxy groups, 5,6,7,8-tetrahydronaphthanelyl and 2-thienyl.

49. (Previously Presented) The compound according to Claim 48, wherein the sequence R_6 - $(CH_2)_n$ – A – $(CH_2)_m$ – is chosen from methyl, 3-phenoxypropyl, 3-(3-hydroxyphenoxy)propyl, allyl, heptyl, 3-phenylpropyl, 3-phenylallyl, 2-phenoxyethyl, 2-benzyloxyethyl, cyclohexylmethyl, 3-(5,6,7,8-tetrahydronaphthalen-2-yloxy)propyl, 5-

(2,6-dimethylphenoxy)pentyl, 3-thien-2-ylpropyl and 3-cyclohexylpropyl and X^- is bromide or trifluoroacetate.

50-53. (Canceled).

54. (Previously Presented) A process for producing a compound of claim 33, wherein the process comprises reacting a compound of formula (I)



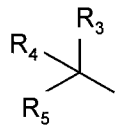
(I)

wherein:

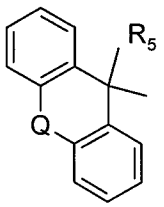
- R_1 represents a hydrogen atom or a straight or branched, optionally substituted lower alkyl group;

- R_2 represents a group of formula i) or ii)

i)



ii)



wherein:

- R_3 represents a group chosen from phenyl, 2-furyl, 3-furyl, 2-thienyl and 3-thienyl;

- R_4 represents a group chosen from optionally substituted lower alkyl, optionally substituted lower alkenyl, optionally substituted lower alkynyl, cycloalkyl, cycloalkylmethyl, phenyl, benzyl, phenethyl, 2-furyl, 3-furyl, 2-thienyl and 3-thienyl; and

- R_5 represents a hydrogen atom or a hydroxy, methyl, or $-CH_2OH$ group;

wherein the benzene rings in formula ii) and the cyclic groups represented by R_3 and R_4 are each independently optionally substituted by one, two or three, identical or different, substituents chosen from halogen, straight or branched, optionally substituted lower alkyl, hydroxy, straight or branched, optionally substituted lower alkoxy, nitro, cyano, $-CO_2R'$ and – NR'R", wherein R' and R" each independently represents a hydrogen atom or a straight or branched, optionally substituted lower alkyl group or R' and R" together with the atom to which they are attached form a cyclic group;

- Q represents a single bond or a $-CH_2-$, $-CH_2-CH_2-$, -O-, $-O-CH_2-$, -S-, $-S-CH_2-$ or -CH=CH- group; and

- p is 1 or 2 and the amide group is at positions 2, 3 or 4 of the azabicyclic ring;

or pharmaceutically acceptable salt thereof, or a stereoisomer or a mixture thereof;

with the proviso that when p is 2, the amide moiety is in position 3 of the quinuclidine ring, R_1 is hydrogen and R_3 and R_4 are both unsubstituted phenyl, then

- when the compound is not a pharmaceutically acceptable salt or is a HCl salt, then R_5 cannot be one of hydrogen or hydroxy; and

- when the compound is a quaternary ammonium salt having a methyl group attached to the nitrogen atom of the quinuclidine ring, then R_5 cannot be hydroxy,

with an alkylating agent of formula $R_6-(CH_2)_n-A-(CH_2)_m-W$, wherein

- W represents a suitable leaving group.

55-60. (Canceled).

61. (New) The compound according to Claim 33, chosen from:

- 3-(2-Hydroxy-2,2-dithien-2-ylacetylamino)-1-methyl-1-azoniabicyclo[2.2.2]octane bromide;

- 3-(2-Hydroxy-2,2-dithien-2-ylacetylamino)-1-(3-phenoxypropyl)-1-azoniabicyclo[2.2.2]octane bromide;

- (3R)-3-(2-Hydroxy-2,2-dithien-2-ylacetylamino)-1-methyl-1-azoniabicyclo[2.2.2]octane trifluoroacetate;

- (3R)-1-Allyl-3-(2-hydroxy-2,2-dithien-2-ylacetylamino)-1-azoniabicyclo[2.2.2]octane trifluoroacetate;

- (3R)-1-Heptyl-3-(2-hydroxy-2,2-dithien-2-ylacetylamino)-1-azoniabicyclo[2.2.2]octane trifluoroacetate;

- (3R)-3-(2-Hydroxy-2,2-dithien-2-ylacetylamino)-1-(3-phenylpropyl)-1-azoniabicyclo[2.2.2]octane bromide;

- (3R)-3-(2-Hydroxy-2,2-dithien-2-ylacetylamino)-1-((E)-3-phenylallyl)-1-azoniabicyclo[2.2.2]octane trifluoroacetate;

- (3R)-3-(2-Hydroxy-2,2-dithien-2-ylacetylamino)-1-(2-phenoxyethyl)-1-azoniabicyclo[2.2.2]octane bromide;

- (3R)-3-(2-Hydroxy-2,2-dithien-2-ylacetylamino)-1-(3-phenoxypropyl)-1-azoniabicyclo[2.2.2]octane bromide;

- (3R)-3-(2-Hydroxy-2,2-dithien-2-ylacetylamino)-1-[3-(3-hydroxyphenoxy)propyl]-1-azoniabicyclo[2.2.2]octane trifluoroacetate;

- (3R)-1-(2-Benzyloxyethyl)-3-(2-hydroxy-2,2-dithien-2-ylacetylamino)-1-azoniabicyclo[2.2.2]octane trifluoroacetate;

- (3R)-3-(2-Hydroxy-2,2-dithien-2-ylacetylamino)-1-(3-thien-2-ylpropyl)-1-azoniabicyclo[2.2.2]octane bromide;

- (3S)-3-(2-Hydroxy-2,2-dithien-2-ylacetylamino)-1-(3-phenoxypropyl)-1-azoniabicyclo[2.2.2]octane bromide;

- (3R)-3-(2,2-Dithien-2-ylacetylamino)-1-(3-phenoxypropyl)-1-azoniabicyclo[2.2.2]octane bromide;

- 1-Methyl-3-[(9H-xanthen-9-ylcarbonyl)amino]-1-azoniabicyclo[2.2.2]octane bromide;

- 1-(3-Phenoxypropyl)-3-[(9H-xanthen-9-ylcarbonyl)amino]-1-azoniabicyclo[2.2.2]octane bromide;

- (3R)-1-(3-Phenoxypropyl)-3-[(9H-xanthen-9-ylcarbonyl)amino]-1-azoniabicyclo[2.2.2]octane bromide;

- (3S)-1-Allyl-3-[(9H-xanthen-9-ylcarbonyl)amino]-1-azoniabicyclo[2.2.2]octane trifluoroacetate;

- (3S)-1-Heptyl-3-[(9H-xanthen-9-ylcarbonyl)amino]-1-azoniabicyclo[2.2.2]octane trifluoroacetate;

- (3S)-1-Cyclohexylmethyl-3-[(9H-xanthen-9-ylcarbonyl)amino]-1-azoniabicyclo[2.2.2]octane trifluoroacetate;

- (3S)-1-(3-Cyclohexylpropyl)-3-[(9H-xanthen-9-ylcarbonyl)amino]-1-azoniabicyclo[2.2.2]octane trifluoroacetate;

- (3S)-1-(3-Phenoxypropyl)-3-[(9H-xanthen-9-ylcarbonyl)amino]-1-azoniabicyclo[2.2.2]octane bromide;

- (3S)-1-[3-(5,6,7,8-Tetrahydronaphthalen-2-yloxy)propyl]-3-[(9H-xanthen-9-ylcarbonyl)amino]-1-azoniabicyclo[2.2.2]octane trifluoroacetate;

- (3S)-1-[5-(2,6-Dimethylphenoxy)pentyl]-3-[(9H-xanthen-9-ylcarbonyl)amino]-1-azoniabicyclo[2.2.2]octane trifluoroacetate;

- 3-{[(9-Hydroxy-9H-fluoren-9-yl)carbonyl]amino}-1-methyl-1-azoniabicyclo[2.2.2]octane bromide;

- 3-{[(9-Hydroxy-9H-fluoren-9-yl)carbonyl]amino}-1-(3-phenoxypropyl)-1-azoniabicyclo[2.2.2]octane bromide;

- (3R)-1-[3-(2-Carbamoylphenoxy)propyl]-3-{[(9-Hydroxy-9H-fluoren-9-yl)carbonyl]amino}-1-azoniabicyclo[2.2.2]octane formate;

- (3R)-1-[4-(4-Fluorophenyl)-4-oxobutyl]-3-{[(9-Hydroxy-9H-fluoren-9-yl)carbonyl]amino}-1-azoniabicyclo[2.2.2]octane formate;

- (3R)-3-{[(9-Hydroxy-9H-fluoren-9-yl)carbonyl]amino}-1-[3-(methylphenylamino)propyl]-1-azoniabicyclo[2.2.2]octane chloride;

- (3R)-3-{[(9-Hydroxy-9H-fluoren-9-yl)carbonyl]amino}-1-(3-phenylsulfanylpropyl)-1-azoniabicyclo[2.2.2]octane formate;

- (3R)-3-[Methyl-(9H-xanthen-9-ylcarbonyl)amino]-1-(3-pyrrol-1-ylpropyl)-1-azoniabicyclo[2.2.2]octane bromide;

- (3R)-1-[3-(Biphenyl-4-yloxy)propyl]-3-[methyl-(9H-xanthene-9-carbonyl)amino]-1-azoniabicyclo[2.2.2]octane chloride;

- (3R)-3-(2-Fur-2-yl-2-hydroxypent-3-ynoylamino)-1-[3-(naphthalen-1-yloxy)propyl]-1-azoniabicyclo[2.2.2]octane chloride;

- (3R)-1-[3-(Benzo[1,3]dioxol-5-yloxy)propyl]-3-(2-fur-2-yl-2-hydroxypent-3-ynoylamino)-1-azonia-bicyclo[2.2.2]octane bromide;

- (3R)-1-[3-(Benzothiazol-2-yloxy)propyl]-3-(2-fur-2-yl-2-hydroxypent-3-ynoylamino)-1-azonia-bicyclo[2.2.2]octane chloride;

- (3R)-3-{[(2S)-2-Cyclopentyl-2-hydroxy-2-thien-2-ylacetyl]amino}-1-(2-hydroxyethyl)-1-azoniabicyclo[2.2.2]octane bromide;

- (3R)-3-{[(2S)-2-Cyclopentyl-2-hydroxy-2-thien-2-ylacetyl]amino}-1-(2-ethoxyethyl)-1-azoniabicyclo[2.2.2]octane formate;

- (3R)-3-{[(2S)-2-Cyclopentyl-2-hydroxy-2-thien-2-ylacetyl]amino}-1-(4,4,4-trifluorobutyl)-1-azoniabicyclo[2.2.2]octane bromide;

- (3R)-1-(4-Acetoxybutyl)-3-[2-(5-bromothien-2-yl)-2-(4-fluoro-3-methylphenyl)-2-hydroxyacetylamino]-1-azoniabicyclo[2.2.2]octane bromide;

- (3R)-3-[2-(5-Bromothien-2-yl)-2-(4-fluoro-3-methylphenyl)-2-hydroxyacetylamino]-1-(4-ethoxycarbonylbutyl)-1-azoniabicyclo[2.2.2]octane bromide;

- (3R)-1-(3-Acetylsulfanylpropyl)-3-[2-(5-bromothien-2-yl)-2-(4-fluoro-3-methylphenyl)-2-hydroxyacetylamino]-1-azoniabicyclo[2.2.2]octane formate;

- (3R)-1-(3-Cyanopropyl)-3-[2-fur-2-yl-2-hydroxy-4-(4-methoxyphenyl)butyrylamino]-1-azoniabicyclo[2.2.2]octane bromide;

- (3R)-1-(2-Carbamoylethyl)-3-[2-fur-2-yl-2-hydroxy-4-(4-methoxyphenyl)butyrylamino]-1-azoniabicyclo[2.2.2]octane formate; and

- (3R)-1-(2-[1,3]Dioxolan-2-yl-ethyl)-3-[2-fur-2-yl-2-hydroxy-4-(4-methoxyphenyl)butyrylamino]-1-azoniabicyclo[2.2.2]octane bromide.

62. (New) A pharmaceutical composition comprising at least one compound according to Claim 33 in admixture with at least one pharmaceutically acceptable carrier or diluent.

63. (New) A compound of Claim 33, wherein the compound is effective for the treatment of a pathological condition or disease susceptible to amelioration by antagonism of M3 muscarinic receptors.

64. (New) A method for treating a subject afflicted with a pathological condition or disease susceptible to amelioration by antagonism of M3 muscarinic receptors, comprising administering to the subject an effective amount of at least one compound of Claim 33.

65. (New) The method according to Claim 64 wherein the pathological condition is chosen from respiratory, urological, and gastrointestinal disease or disorder.

66. (New) A combination product comprising,

(i) at least one first compound of Claim 33; and

(ii) at least one second compound effective in the treatment of at least one pathological condition chosen from respiratory, urological, and gastrointestinal disease or disorder, wherein the at least one first compound and the at least one second compound are administered simultaneously, separately, or sequentially.

67. (New) A combination product comprising,

(i) at least one first compound of Claim 33; and

(ii) at least one second compound chosen from a $ß_2$ agonist, a steroid, an antiallergic drug, a phosphodiesterase IV inhibitor, and a leukotriene D4 (LTD4) antagonist, wherein the at least one first compound and the at least one second compound are administered simultaneously, separately, or sequentially in the treatment of a respiratory disease.